

Ph.D. Positions in Numerical Computation, Machine Learning, and System Control
University of South Carolina

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Posted Jun. 1, 2020, expired Oct. 1, 2020

Job Title Ph.D. Positions in Numerical Computation, Machine Learning, and System Control

Department Mechanical Engineering

https://sc.edu/study/colleges_schools/engineering_and_computing/faculty-staff/yi_wang.php

Institution University of South Carolina
Columbia, South Carolina

Date Posted Jun. 1, 2020

Application Deadline Jul. 1, 2021

Position Start Date Jan. 16, 2021

Job Categories Graduate Student
Post-Doc

Academic Field(s) Water Resources Engineering

Transportation Engineering

Sustainable Engineering

Structural Engineering

Robotics

Optics & Optical Engineering

Ocean Engineering

Nuclear

Naval Architecture & Marine Engineering

Mechatronics

Mechanical Engineering

Material/Metallurgy

Manufacturing & Quality Engineering

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Industrial & Systems Engineering
Engineering Physics
Engineering Mechanics
Energy Technology
Electrical and/or Electronics
Computer Engineering
Civil Engineering
Bioengineering (all Bio-related fields)
Aerospace/Aeronautical/Astronautics
Engineering - Other

Job Website <https://yiwangusc.wixsite.com/yiwang>

Apply By Email yiwang@cec.sc.edu

Job Description

Several PhD positions and full graduate research assistantship (GRA) in Mechanical Engineering are available in Spring 2021 and Fall 2021 within the research group of Dr. Yi Wang at the University of South Carolina-USC (Columbia/Main campus, <https://yiwangusc.wixsite.com/yiwang>).

1. Reduced Order Modeling, Machine Learning, and Design Optimization for Multiphysics Engineering Systems

We will investigate and develop reduced order modeling, machine learning, and design optimization methods for multiphysics systems for a variety of engineering applications, which include but not limited to thermal-fluidics, aerospace and aeroservoelasticity, energy materials and management, additive manufacturing, and microfluidics & nanofluidics.

2. Real-time Computing and Control on Edge Computing

We will investigate and develop real-time control framework, algorithms, and cyberphysical systems for a variety of engineering applications on edge computing platforms, which include but not limited to energy auditing & cybersecurity, multi-fidelity model optimization, and autonomous systems (real-time fault detection & mitigation, path planning, and control).

Research efforts will include at least one of the followings

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- Development of reduced order models for multiphysics engineering systems
- Development of data mining, machine learning, and optimization algorithms
- Development of CPU+GPU computing algorithms
- Development of control framework for various robotic platforms

At least one of the qualifications below is preferred:

- Strong background in control theory, linear algebra, and computational mathematics and/or mechanics
- Experience in developing numerical models, codes, and computation algorithms (CFD and FEM)
- Hands-on experience with computing in Matlab, C/C++, Python, or other object-oriented programming languages
- Hands-on experience with embedded system and edge-computing modules, such as Jetson TX series, Intel NUC, Raspberry Pi, and Arduino.
- Strong interest and self-motivation to perform cutting-edge research and conquer challenges in real-world engineering and to publish high-impact papers

USC is the flagship university in the State of South Carolina, and the Ph.D. program at the department of Mechanical Engineering is ranked No. 31 nationally by the National Research Council (NRC) (<http://www.me.sc.edu/about/>), and the College of Engineering and Computing is ranked No. 1 in the State of South Carolina for faculty research productivity.

The group of Dr. Wang focuses on computational and data-enabled science and engineering (CDS&E) and its applications in real-world multiphysics systems, including micro/nanofluidics, energy management, additive manufacturing, aerodynamics & aerospace. CDS&E, recently emerging as a focal point of multidisciplinary research has been applied to essentially each phase of technology development and industrial engineering, from conceptualization, virtual prototyping and design, and automation and control, to final verification and validation (V&V). Our group aims to discover and develop new methodologies, framework, and capabilities to bridge CDS&E and system engineering in the real world and with particular emphasis on multiphysics and engineering intelligence. To apply, please send your CV/Resume, publications, etc. in a single PDF (for Ph.D. applicants, transcripts, and GRE scores are also required) to Dr. Wang (yiwang@cec.sc.edu) with the email subject "Position Application".

Contact Information

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Please reference Academickeys in your cover letter when
applying for or inquiring about this job announcement.

Contact Yi Wang
Mechanical Engineering
University of South Carolina
300 Main Street
Columbia, SC 29208

Contact E-mail yi.wang16@yahoo.com